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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
LUM, LEON YUN BON	

ART UNIT	PAPER NUMBER
1641	

DATE MAILED: 04/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/022,631	GEERLINGS, MAURITS W.	
	Examiner	Art Unit	
	Leon Y. Lum	1641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 November 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *26-43* is/are pending in the application.

4a) Of the above claim(s) *30-38* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *26-29 and 39-43* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *26 November 2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. With regards to the election of Group III with traverse in the reply filed 26 November 2004, Applicant's arguments are convincing and Groups I and III are rejoined.

Priority

2. Although priority is claimed back to US 5,246,691, filed 19 February 1991, the limitations in claims 26-29 only have support back to abandoned application 08/097,471, filed 27 July 1993, and an intervening reference has been applied, as provided in the 35 USC 103(a) rejection below.

Claim Objections

3. Claim 39 is objected to because of the following informalities: Line 5, between the terms "radioconjugate" and "of", seems to be missing the terms "consisting" or "comprising", which would clarify the claimed invention. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 39-43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. In claim 39, lines 5-6, the phrase "radioconjugate of a targeting moiety bound, directly or indirectly, to an α-particle emitting radioisotope" is vague and indefinite. It is unclear whether the radioconjugate is bound to an α-particle emitting radioisotope or whether the α-particle emitting radioisotope is part of the radioconjugate.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 39-43 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Subramanian (US 5,292,868).

In the instant claims, Subramanian reference teaches attaching ^{213}Bi radiolabels to antibodies (i.e. targeting moiety) through a chelating agent, wherein the antibodies recognize tumor associated antigens (i.e. specific binding pair; binding specificity for cell surface receptor on diseased cells) for cancer therapy (i.e. administering to mammal). See column 1, lines 17-27; column 2, lines 51-67. In addition, Subramanian teaches conjugation with peptides. See column 10, lines 55-58.

9. Claims 39-40 and 42 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Macklis et al (Science, vol. 240, pp. 1024-1026, 1988).

In the instant claims, Macklis et al reference teaches that ^{212}Bi-labeled radioimmunoconjugate, wherein ^{212}Bi is bound to a monoclonal antibody conjugated to the chelating agent diethylenetriaminepentaacetic acid (i.e. targeting moiety bound indirectly to an α-particle emitting radioisotope) is highly efficient at eradicating Thy 1.2^{+} EL-4 murine lymphoma cells in vivo (i.e. diseased cells; administering to a mammal a sufficient amount of said conjugate), and this cytotoxicity is antigen selective (i.e. specific binding pair). See page 1024, left column, 2nd paragraph to middle column, 2nd paragraph.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claims 26 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Subramanian (US 5,292,868) in view of van Geel et al (US 5,355,394) and Kozak et al (Tibtech, vol. 4, no. 10, pp. 259-264, 1986).

In the instant claims, Subramanian reference teaches attaching ^{213}Bi radiolabels to antibodies (i.e. targeting moiety) through a chelating agent, wherein the antibodies recognize tumor associated antigens (i.e. coupling radiolabel to a targeting moiety to form a conjugate; ligand having binding specificity for a receptor associated with said target cell; cellular diseases) for cancer therapy (i.e. administering to mammal). See column 1, lines 17-27; column 2, lines 51-67. In addition, Subramanian teaches conjugation with peptides. See column 10, lines 55-58.

However, Subramanian fails to teach the steps of providing a sufficient quantity of ^{225}Ac to produce a therapeutically effective amount of ^{213}Bi through radioactive decay,

binding the ^{225}Ac onto a substrate for immobilizing ^{225}Ac, eluting from the substrate ^{213}Bi produced by bound ^{225}Ac, and that the radiolabel coupled to the targeting moiety is ^{213}Bi, substantially free of ^{225}Ac.

Van Geel et al reference teaches the production and recovery of ^{213}Bi from ^{225}Ac, in order to obtain a radionuclide that has a short half-life of hours and has decay produces with low chemical and radiological impact. See column 1, lines 15-20 and column 2, lines 48-52; and Figure 1.

Kozak et al reference teaches eluting α-particle emitters from nuclide generators (i.e. ^{225}Ac) held by resin in a polyethylene column (i.e. immobilizing substrate), in order to provide a means for easily obtaining α-particle emitters (i.e. ^{213}Bi) using a disposable device. See page 263, left column, 2nd paragraph.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Subramanian with the production and recovery of ^{213}Bi from ^{225}Ac, as taught by van Geel et al, in order to obtain a radionuclide that has a short half-life of hours and has decay produces with low chemical and radiological impact, and to modify the method of Macklis et al with the step of eluting α-particle emitters from nuclide generators (i.e. ^{225}Ac) held by resin in a polyethylene column (i.e. immobilizing substrate), as taught by Kozak et al, in order to provide a means for easily obtaining α-particle emitters (i.e. ^{213}Bi) using a disposable device. One of ordinary skill in the art at the time of the invention would have had reasonable expectation of success in producing ^{213}Bi from ^{225}Ac, as taught by van Geel et al, and eluting α-particle emitters from immobilized nuclide generators, as taught by Kozak et al, in the method of

Subramanian, since Subramanian teaches the use of ^{213}Bi, and the steps taught by van Geel et al and Kozak et al are steps to produce a ^{213}Bi.

13. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Macklis et al (Science, vol. 240, pp. 1024-1026, 1988) in view of van Geel et al (US 5,355,394) and Kozak et al (Tibtech, vol. 4, no. 10, pp. 259-264, 1986).

In the instant claim, Macklis et al reference teaches that ^{212}Bi-labeled radioimmunoconjugate, wherein ^{212}Bi is bound to a monoclonal antibody conjugated to the chelating agent diethylenetriaminepentaacetic acid (i.e. coupling radiolabel to a targeting moiety to form a conjugate) is highly efficient at eradicating Thy 1.2^{+} EL-4 murine lymphoma cells in vivo (i.e. target cells are in cellular diseases; administering said conjugate to a mammal), and this cytotoxicity is antigen selective (i.e. ligand having binding specificity for a receptor associated with said target cell). See page 1024, left column, 2^{nd} paragraph to middle column, 2^{nd} paragraph.

However, Macklis et al reference fails to teach the steps of providing a sufficient quantity of ^{225}Ac to produce a therapeutically effective amount of ^{213}Bi through radioactive decay, binding the ^{225}Ac onto a substrate for immobilizing ^{225}Ac, eluting from the substrate ^{213}Bi produced by bound ^{225}Ac, and that the radiolabel coupled to the targeting moiety is ^{213}Bi, substantially free of ^{225}Ac.

Van Geel et al reference teaches the production and recovery of ^{213}Bi from ^{225}Ac, in order to obtain a radionuclide that has a short half-life of hours and has decay

produces with low chemical and radiological impact. See column 1, lines 15-20 and column 2, lines 48-52; and Figure 1.

Kozak et al reference teaches eluting α-particle emitters from nuclide generators (i.e. ^{225}Ac) held by resin in a polyethylene column (i.e. immobilizing substrate), in order to provide a means for easily obtaining α-particle emitters (i.e. ^{213}Bi) using a disposable device. See page 263, left column, 2nd paragraph.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Macklis et al with the production and recovery of ^{213}Bi from ^{225}Ac, as taught by van Geel et al, in order to obtain a radionuclide that has a short half-life of hours and has decay produces with low chemical and radiological impact, and to modify the method of Macklis et al with the step of eluting α-particle emitters from nuclide generators (i.e. ^{225}Ac) held by resin in a polyethylene column (i.e. immobilizing substrate), as taught by Kozak et al, in order to provide a means for easily obtaining α-particle emitters (i.e. ^{213}Bi) using a disposable device. One of ordinary skill in the art at the time of the invention would have had reasonable expectation of success in producing ^{213}Bi from ^{225}Ac, as taught by van Geel et al, and eluting α-particle emitters from immobilized nuclide generators, as taught by Kozak et al, in the method of Macklis et al, since Macklis et al teach the use of an α-particle emitter, and the steps taught by van Geel et al and Kozak et al are steps to produce a type of α-particle emitter.

14. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Subramanian (US 5,292,868) in view of van Geel et al (US 5,355,394) and Kozak et al

(Tibtech, vol. 4, no. 10, pp. 259-264, 1986) as applied to claim 26 above, and further in view of Greer (US 4,894,364).

Subramanian, van Geel et al, and Kozak et al references have been disclosed above, but fail to teach that the conjugate is administered intermittently in fractions of the total amount, wherein a sufficient number of fractions of sufficient quantities of conjugate are administered to kill essentially all target cells, and that the total quantity of α radiation administered to the mammal is less than the total quantity necessary to kill essentially all target cells by administering a single dose of said conjugate.

Greer reference teaches administering repeated dosages with less total irradiation to achieve effective tumor kill, in order to provide a method that results in long term cures as opposed to only partial remission. See column 11, lines 59-66.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Subramanian, van Geel et al, and Kozak et al with the step of administering repeated dosages with less total irradiation to achieve effective tumor kill, as taught by Greer, in order to provide a method that results in long term cures as opposed to only partial remission. One of ordinary skill in the art at the time of the invention would have had reasonable expectation of success in including the step of repeated dosages with less total radiation, as taught by Greer, in the method of Subramanian, van Geel et al, and Kozak et al, since Subramanian, van Geel et al, and Kozak et al teach radioactive elimination of tumor cells, and the repeated dosages with less total radiation taught by Greer is also used to destroy tumor cells.

15. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Macklis et al (Science, vol. 240, pp. 1024-1026, 1988) in view of van Geel et al (US 5,355,394) and Kozak et al (Tibtech, vol. 4, no. 10, pp. 259-264, 1986) as applied to claim 26 above, and further in view of Greer (US 4,894,364).

Macklis et al, van Geel et al, and Kozak et al references have been disclosed above, and Macklis et al additionally teach the step of injecting two to four doses over four to eight hours, wherein most of the animals treated with 150 or 230 μCi were cured of their tumor burden (i.e. conjugate administered intermittently in fractions of the total amount required kill said target cells, and a sufficient number of fractions of sufficient quantities are administered to kill essentially all target cells). See page 1024, middle column, 2nd paragraph; and 1025, right column, 1st paragraph. However, Macklis et al, van Geel et al, and Kozak et al fail to teach that the total quantity of α radiation administered to the mammal is less than the total quantity necessary to kill essentially all target cells by administering a single dose of said conjugate.

Greer reference teaches administering repeated dosages with less total irradiation to achieve effective tumor kill, in order to provide a method that results in long term cures as opposed to only partial remission. See column 11, lines 59-66.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Macklis et al, van Geel et al, and Kozak et al with the step of administering repeated dosages with less total irradiation to achieve effective tumor kill, as taught by Greer, in order to provide a method that results in long term cures as opposed to only partial remission. One of ordinary skill in the art at the time of

the invention would have had reasonable expectation of success in including the step of repeated dosages with less total radiation, as taught by Greer, in the method of Macklis et al, van Geel et al, and Kozak et al, since Macklis et al, van Geel et al, and Kozak et al teach radioactive elimination of tumor cells, and the repeated dosages with less total radiation taught by Greer is also used to destroy tumor cells.

16. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Subramanian (US 5,292,868) in view of van Geel et al (US 5,355,394) and Kozak et al (Tibtech, vol. 4, no. 10, pp. 259-264, 1986) as applied to claim 26 above, and further in view of Turner (US 5,296,216).

Subramanian, van Geel et al, and Kozak et al references have been disclosed above, but fail to teach that said conjugate is administered continuously for a time sufficient to administer an effective amount of ^{213}Bi for killing said target cells in the mammal, and wherein a sufficient duration of continuous administration is maintained to kill essentially all target cells bound by said conjugate.

Turner teaches administering radiotherapy with a continuous intravenous infusion for five days, in order to prevent recurrence of cancer after surgical removal of cancer. See column 6, lines 3-14.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Subramanian, van Geel et al, and Kozak et al with the step of administering radiotherapy with a continuous intravenous infusion for five days, as taught by Turner, in order to prevent recurrence of cancer after surgical removal of

cancer. One of ordinary skill in the art at the time of the invention would have had reasonable expectation of success in including the step of continuous intravenous infusion for five days, as taught by Turner, in the method of Subramanian, van Geel et al, and Kozak et al, since Subramanian, van Geel et al, and Kozak et al teach radioactive elimination of tumor cells, and the continuous infusion taught by Turner also eliminates tumor cells.

17. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Macklis et al (Science, vol. 240, pp. 1024-1026, 1988) in view of van Geel et al (US 5,355,394) and Kozak et al (Tibtech, vol. 4, no. 10, pp. 259-264, 1986) as applied to claim 26 above, and further in view of Turner (US 5,296,216).

Macklis et al, van Geel et al, and Kozak et al references have been disclosed above, but fail to teach that said conjugate is administered continuously for a time sufficient to administer an effective amount of ^{213}Bi for killing said target cells in the mammal, and wherein a sufficient duration of continuous administration is maintained to kill essentially all target cells bound by said conjugate.

Turner teaches administering radiotherapy with a continuous intravenous infusion for five days, in order to prevent recurrence of cancer after surgical removal of cancer. See column 6, lines 3-14.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Macklis et al, van Geel et al, and Kozak et al with the step of administering radiotherapy with a continuous intravenous infusion for five days,

as taught by Turner, in order to prevent recurrence of cancer after surgical removal of cancer. One of ordinary skill in the art at the time of the invention would have had reasonable expectation of success in including the step of continuous intravenous infusion for five days, as taught by Turner, in the method of Macklis et al, van Geel et al, and Kozak et al, since Macklis et al, van Geel et al, and Kozak et al teach radioactive elimination of tumor cells, and the continuous infusion taught by Turner also eliminates tumor cells.

18. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Macklis et al (Science, vol. 240, pp. 1024-1026, 1988) in view of van Geel et al (US 5,355,394) and Kozak et al (Tibtech, vol. 4, no. 10, pp. 259-264, 1986) as applied to claim 26 above, and further in view of Zamora et al (US 5,443,816).

Macklis et al, van Geel et al, and Kozak et al references have been disclosed above, but fail to teach that said ligand is a peptide.

Zamora et al reference teaches peptides that can be conjugated to a medically useful, radioactive metal ion, including bismuth, and that can be applied in vivo, in order to provide a molecule that can be frozen or lyophilized and maintained for an indefinite period before labeling with the medically useful metal ion. See column 3, lines 36-42; column 4, lines 39-47; column 9, lines 17-20; and column 20, lines 21-29.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Macklis et al, van Geel et al, and Kozak et al with peptides that can be conjugated to a medically useful, radioactive metal ion, including

bismuth, and that can be applied in vivo, as taught by Zamora et al, in order to provide a molecule that can be frozen or lyophilized and maintained for an indefinite period before labeling with the medically useful metal ion. One of ordinary skill in the art at the time of the invention would have had reasonable expectation of success in including peptides that can be conjugated to radioactive metal ions, as taught by Zamora et al, in the method of Macklis et al, van Geel et al, and Kozak et al, since Macklis et al, van Geel et al, and Kozak et al teach targeting moieties bound to an α-particle emitting radioisotope for radiotherapy in vivo, and the peptide taught by Macklis et al is one type of targeting moiety that can be bound to bismuth, which is a type of α-particle emitting radioisotope , and can also be applied in vivo.

19. Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Macklis et al (Science, vol. 240, pp. 1024-1026, 1988) in view of Gansow et al (US 4,454,106).

Macklis et al reference has been disclosed above, but fails to teach that said α-particle emitting radioisotope is ^{213}Bi.

Gansow et al reference teaches bismuth-213, in order to provide an alternative radiometal to bismuth-212 to treat cellular disorders with a half-life of less than about 4 days and can decay rapidly to a stable isotope. See column 4, lines 11-21.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Macklis et al with bismuth-213, as taught by Gansow et al, in order to provide an alternative radiometal to bismuth-212 to treat cellular disorders with a half-life of less than about 4 days and can decay rapidly to a stable

isotope. One of ordinary skill in the art at the time of the invention would have had reasonable expectation of success in including bismuth-213, as taught by Gansow et al, in the method of Macklis et al, since Macklis et al teach the conjugation of an α-particle emitting radioisotope, and the bismuth-213 radiometal taught by Gansow et al is one type of α-particle emitting radioisotope.

20. Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Macklis et al (Science, vol. 240, pp. 1024-1026, 1988) in view of Zamora et al (US 5,443,816).

Macklis et al reference has been disclosed above, but fails to teach that said ligand is a peptide.

Zamora et al reference teaches peptides that can be conjugated to a medically useful, radioactive metal ion, including bismuth, and that can be applied in vivo, in order to provide a molecule that can be frozen or lyophilized and maintained for an indefinite period before labeling with the medically useful metal ion. See column 3, lines 36-42; column 4, lines 39-47; column 9, lines 17-20; and column 20, lines 21-29.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Macklis et al with peptides that can be conjugated to a medically useful, radioactive metal ion, including bismuth, and that can be applied in vivo, as taught by Zamora et al, in order to provide a molecule that can be frozen or lyophilized and maintained for an indefinite period before labeling with the medically useful metal ion. One of ordinary skill in the art at the time of the invention would have had reasonable expectation of success in including peptides that can be conjugated to

radioactive metal ions, as taught by Zamora et al, in the method of Macklis et al, since Macklis et al teach targeting moieties bound to ^{212}Bi for radiotherapy in vivo, and the peptide taught by Macklis et al is one type of targeting moiety that can be bound to radioactive bismuth and applied in vivo.

Double Patenting

21. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

22. Claims 26-29 and 39-43 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3 of U.S. Patent No. 5,641,471. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1-3 of the copending application recite the limitations of claims 26-29 and 39-43 of the instant application, including the steps of killing micrometastases target cells by providing a sufficient quantity of ^{225}Ac immobilized on a binding medium (i.e. substrate) to produce an effective amount of

^{213}Bi, eluting and coupling the ^{213}Bi to a an antibody targeting moiety (i.e. ligand having binding specificity for receptor associated with said target cell), and administering the conjugate to a mammal to permit the conjugate to contact the target cells (i.e. effectuate specific binding).

23. Claims 26-29 and 39-43 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-11 and 20-22 of U.S. Patent No. 6,403,771. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1-11 and 20-22 of the copending application recite the limitations of claims 26-29 and 39-43 of the instant application, including the steps of loading ^{225}Ac onto a binding medium (i.e. substrate) to yield ^{213}Bi, eluting and coupling the ^{213}Bi to a ligand targeting moiety which binds specifically to a target moiety comprising a cell-associated ligand binding site (i.e. ligand having binding specificity for receptor associated with target cell), said targeting moiety forming a therapeutic radioconjugate with ^{213}Bi, the targeting moiety being effective to deliver the radioisotope (i.e. therapeutically effective) to a pathological site in vivo (i.e. cellular disease).

Conclusion

24. No claims are allowed.

25. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure:

Geerlings et al (WO 90/15625) teach a radio-immunoconjugate comprising a radionuclide that emits α-particles and conjugated to a tumorspecific antibody.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leon Y. Lum whose telephone number is (571) 272-2878. The examiner can normally be reached on weekdays from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on (571) 272-0823. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Leon Y Lum
Patent Examiner
Art Unit 1641

LYL

LONG V. LE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600

04/25/05